

TECHNICAL REVIEW DOCUMENT
for
RENEWAL / MODIFICATION TO OPERATING PERMIT 95OPBA029

Colorado Interstate Gas Company – Flank Compressor Station
Baca County
Source ID 0090001

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Revised June, July, September and November 2012

I. Purpose:

This document establishes the basis for decisions made regarding the applicable requirements, emission factors, monitoring plan and compliance status of emission units covered by the renewal and modification of the Operating Permit for Colorado Interstate Gas Company's (CIG's) Flank Compressor Station. The current Operating Permit for this facility was issued on January 1, 2006. The expiration date was January 1, 2011. However, since a timely and complete renewal application was submitted, under Colorado Regulation No. 3, Part C, Section IV.C all of the terms and conditions of the existing permit shall not expire until the renewal Operating Permit is issued and any previously extended permit shield continues in full force and operation. The source submitted a renewal application on August 24, 2009. Prior to submittal of the renewal application, the source submitted an application on July 6, 2009 requesting that the permit be modified to revise the compliance assurance monitoring plan and to reflect the addition of a flare to the field dehydrator.

This document is designed for reference during review of the proposed permit by EPA, the public, other interested parties and for future reference by the Division to aid in any additional permit modifications at this facility. The conclusions made in this report are based on the renewal application submitted on August 24, 2009, the modification application submitted on July 6, 2009, additional information received on February 28 and August 3 and 31, 2012, comments on the draft permit and technical review document received on July 12, 2012, additional information and comments on the draft permit and technical review document received on October 30 and November 2, 2012, previous inspection reports and various e-mail correspondence, as well as telephone conversations with the applicant. Please note that copies of the Technical Review Document for the original permit and any Technical Review Documents associated with subsequent modifications of the original Operating Permit may be found in the Division files as well as on the Division website at <http://www.colorado.gov/cs/Satellite/CDPHE-AP/CBON/1251596446069>. This narrative is intended only as an adjunct for the reviewer and has no legal standing.

Any revisions made to the underlying construction permits associated with this facility made in conjunction with the processing of this operating permit application have been

reviewed in accordance with the requirements of Regulation No. 3, Part B, Construction Permits, and have been found to meet all applicable substantive and procedural requirements. This operating permit incorporates and shall be considered to be a combined construction/operating permit for any such revision, and the permittee shall be allowed to operate under the revised conditions upon issuance of this operating permit without applying for a revision to this permit or for an additional or revised construction permit.

II. Description of Source

The facility is a natural gas transmission and storage facility as defined under Standard Industrial Classification 4922. Natural gas is injected into the Flank Storage Field in the summer and is withdrawn during the winter season. After withdrawal, the gas is dehydrated by triethylene glycol dehydrators on site and then pumped into the main line for market using natural gas fueled internal combustion engine driven compressors.

The significant emission units at this facility include six (6) internal combustion engines and four (4) triethylene glycol dehydrators. Non-selective catalytic reduction units (NSCR) were installed on three of these engines in December 2003 and the existing condenser on one of the dehydrators was replaced with a glycol-cooled condenser in January 2002. In addition, a flare was installed on the field dehydrator in July 2009.

Except for the control equipment changes discussed above, based on the information available to the Division and provided by the applicant, it appears that no modifications to these emission units has occurred since the previous issuance of the operating permit.

This facility is located approximately 16 miles south of Stonington in Baca County, in an area designated as attainment for all criteria pollutants.

The facility is located within 50 miles of Oklahoma and Kansas. There are no federal class I areas within 100 km of this facility.

The summary of emissions that was presented in the Technical Review Document (TRD) for the previous renewal permit has been modified to update actual emissions and to better reflect potential to emit. Potential to emit (PTE) is shown in the table below:

Emission Unit	Potential to Emit (tons/yr)			HAPS
	NO _x	CO	VOC	
E001	15.9	29.5	6.4	See Table 2 on Page 22
E002 – E004	149.4	149.4	8.5	
E005	21.7	56.5	13	
East Dehy (S006)			11.4	
West Dehy (S007)			11.4	

Emission Unit	Potential to Emit (tons/yr)			
	NO _x	CO	VOC	HAPS
Central Dehy (S008)			37.9	See Table 2 on Page 22
Field Dehy (S009)			1.8	
Fugitive VOCs			0.20	
Total	187	235.4	90.6	40.62

Potential to Emit indicated in the above table is based on the following information:

Criteria Pollutants

The criteria pollutant PTE for the engines and dehydrators is based on permitted and/or requested emissions. The PTE for fugitive VOCs is based on the information provided in a March 22, 2007 modification request (this information demonstrated that fugitive VOC emissions from equipment leaks were below APEN de minimis levels, hence the previously issued construction permit was canceled and fugitive VOC emissions from equipment leaks are now included in the insignificant activity list).

Hazardous Air Pollutant (HAP) Emissions:

HAP emissions from the engines are based on the most conservative emission factor from either AP-42 or GRI HAPCalc 2.0 (note that HAPCalc 2.0 factors are consistent with the current GRI HAPCalc factors) and permitted fuel consumption. HAP emissions from the dehyds are based on the GLYCalc runs used to set the permit limits. HAP emissions from fugitive VOC sources (leaking components) are based on the information provided in a March 22, 2007 modification request (this request demonstrated that fugitive VOC emissions were below the APEN de minimis level of 2 tons/yr).

Actual emissions are shown in the table below and are based on APENs submitted for the data years indicated in the table.

Emission Unit	Data Year	PM/PM ₁₀	SO ₂	NO _x	CO	VOC	HAPS ¹
E001	PTE	0.27	0.02	15.9	29.5	6.4	1.77
E002 - E004	2010*	1.16	0.04	58.8	58.8	3.4	1.75
E005	2010*	0.15	0.01	7.0	18.1	4.3	1.01
East Dehy (S006)	2011**					3.0	5.2
West Dehy (S007)	2011**					3.0	5.2
Central Dehy (S008)	2011					22.6	8.5
Field Dehy (S009)	PTE					1.8	1.1
Total		1.58	0.07	81.7	106.4	44.5	24.53

¹ Highest single HAP is benzene at 6.91 tons/yr.

*APENS submitted on December 23, 2011 indicate emissions are based on 2010 data plus 100%.

** VOC emissions are based on actual emissions. Reported HAPS are PTE and are based on the GLYCALC run used to set permit limits.

MACT Requirements

Note that the above table and the associated HAP breakdown Table (Table 2 shown on page 22) represents potential HAPS based on traditional PTE methods (i.e. permit limits or equipment operating at design rate for 8760 hrs/yr).

For purposes of Title V, a source would be considered major for HAPs under the traditional PTE methods if HAPs exceed the major source levels of 10 tons/yr of any single HAP and 25 tons/yr of combined HAPs. However, some of the MACT requirements do not rely on traditional PTE methods to determine major source status and so while a source might be major for HAPs under the Title V permit program it may not be considered a major source for HAPs under all of the various MACT standards that might apply to the source.

Oil and Natural Gas Production Facilities (40 CFR Part 63 Subpart HH) and Natural Gas Transmissions and Storage Facilities (40 CFR Part 63 Subpart HHH)

The Natural Gas Transmission and Storage (NGTS) Facilities and Oil and Natural Gas Production (ONGP) Facilities requirements (40 CFR Part 63 Subparts HHH and HH, respectively), allow for emissions from glycol dehydrators to be based on the maximum natural gas throughput rate, rather than traditional PTE (i.e. design rate or permitted emission or throughput limits). The definition of “facility” in the ONGP MACT § 63.761 includes the following language:

Facility means any grouping of equipment where hydrocarbon liquids are processed, upgraded (i.e., remove impurities or other constituents to meet contract specifications), or stored prior to the point of custody transfer; or where natural gas is processed, upgraded, or stored prior to entering the natural gas transmission and storage source category.

This clearly indicates that equipment that is in the ONGP source category is not aggregated with the equipment in the NGTS source category to determine if the “facility” is a major source of HAP emissions. In processing the first renewal permit, CIG indicated that the field dehydrator (S009) and engine (S001) are used to gather the casing head gas of the oil producing wells in the Flank field. Since this activity involves the gathering of field natural gas these emission units are potentially subject to the ONGP MACT and would not be aggregated with the other equipment which is part of the storage facility and potentially subject to the NGTS MACT. A discussion related to these issues is included in the technical review document supporting the first renewal (issued January 1, 2006).

The HAP analysis is shown on Table 1 (page 21) addresses the provisions in the ONGP and NGTS MACTs that stipulate that ONGP and NGTS equipment are not aggregated together and rely on the provisions which allow emissions from glycol dehydrators to be based on levels other than traditional PTE (design rate or permitted emissions). It

should be noted that although the source calculated the maximum natural gas throughput rate (and subsequent hours of operation) as provided for in 40 CFR Part 63 Subpart HHH § 63.1270(a) for dehydrators S006, S007 and S008, the source used permitted hours of operation in the actual MACT analysis. Although permitted hours of operation were used, the HAP analysis was based on an actual gas analysis conducted at the time the MACT analysis was conducted. The benzene, toluene, ethyl benzene and xylene (BTEX) composition used in the MACT analysis was lower than the BTEX composition used to set the VOC emission limits in the permit, therefore, HAP emissions predicted by the MACT analysis (Table 1 on page 21) are lower for these units than the HAP emissions predicted by the GLYCalc runs used to set the permit limits (Table 2 on page 22). Note that the NGTS MACT specifies that the source use maximum values for other parameters over the same period for which the maximum throughput is determined and that those parameters shall be based on an annual average or the highest single value (§ 63.1270(a)(4)). As indicated in Table 1 (page 21), the facility is not a major source for HAPS under the NGTS and ONGP MACT provisions. Applicability of the NGTS and ONGP MACT provisions are as follows:

Oil and Natural Gas Production Facility MACT (40 CFR Part 63 Subpart HH)

The provisions in 40 CFR Part 63 Subpart HH apply to glycol dehydrators located at both major and area sources. The field dehydrator (S009) is considered part of the oil and natural gas production source category and is therefore subject to the requirements for glycol dehydrators located at area sources.

Natural Gas Transmission and Storage Facility MACT (40 CFR Part 63 Subpart HHH)

The provisions in 40 CFR Part 63 Subpart HHH apply to glycol dehydrators located at major sources of HAPs. Therefore, since the remaining dehydrators (S006, S007 and S008) fall under the natural gas transmission and storage facility source category and since the facility is an area source, these requirements do not apply. Note that although revisions to the requirements in 40 CFR Part 63 Subpart HHH on April 17, 2012 were published in the Federal Register on August 16, 2012, these revisions have not changed the fact that the provisions in Subpart HHH apply to major sources only.

As previously stated, some MACT standards define major sources using traditional PTE methods and others, such as the ONGP and NGTS MACT use different procedures. Therefore, this source could be a major source for some MACT standards and an area source (a minor source for HAPS) for others. An analysis of the other MACT standards potentially applicable to the equipment at this source is as follows:

Paint Stripping and Miscellaneous Surface Coating at Area Sources (40 CFR Part 63 Subpart HHHHHH)

The final rules for paint stripping and miscellaneous surface coating were published in the Federal Register on January 9, 2008 and apply to area sources that perform paint stripping operations using methylene chloride, spray application of coatings to motor

vehicles and mobile equipment and spray application of coatings that contain the target HAPS (chromium, lead, manganese, nickel or cadmium). The definition of a major source in this rule (§ 63.11170(b)) appears to be based on traditional PTE and does not preclude aggregating ONGP and NGTS equipment together as specifically noted in 40 CFR Parts 63 Subparts HH and HHH. Therefore, under the provisions of these requirements, the Flank facility would be considered a major source and these requirements do not apply.

Reciprocating Internal Combustion Engines (40 CFR Part 63 Subpart ZZZZ)

The reciprocating internal combustion engine (RICE) MACT was signed as final on February 26, 2004 and was published in the Federal Register on June 15, 2004. Under this rulemaking only RICE that were > 500 hp and located at major sources of HAPS were subject to the requirements. Subsequent revisions were made to the RICE MACT to address new engines ≤ 500 hp located at major sources and new engines of all sizes at area sources (final rule published January 18, 2008), existing compression ignition engines ≤ 500 hp at major sources and all sizes at area sources (final rule published March 3, 2010) and existing spark ignition engines ≤ 500 hp at major sources and all sizes at area sources (final rule published August 20, 2010).

Since the RICE MACT was initially promulgated, the definition of major source has clearly indicated that ONGP and NGTS equipment are not aggregated together to determine if the facility is major. In addition, the definition of potential to emit in the RICE MACT has included the provisions in the ONGP and NGTS MACTs for calculating potential to emit from glycol dehydrators since the RICE MACT requirements were first promulgated in June 2004. Subsequent revisions to the RICE MACT have not changed the definitions of major source and potential to emit and so as indicated in the HAP analysis shown in Table 1 (page 21), both the ONGP and NGTS portions of the Flank Compressor Station are not major for HAPs.

There is a natural gas-fired emergency generator included in the insignificant activity list which would qualify as existing (construction commenced prior to June 12, 2006) and therefore would be subject to requirements in the RICE MACT. However, in their July 12, 2012 comments on the draft permit, the source indicated that the existing emergency generator (a Waukesha 177 hp engine) had been replaced with a Caterpillar emergency generator. At the request of the Division, the source submitted information on August 3, 2012 indicating that the emergency generator was manufactured on April 19, 2006, ordered in April 2007, and installed on site in August 2007. For purposes of the RICE MACT, commenced construction is based on “on-site” fabrication or installation. Since the replacement emergency generator was installed after June 12, 2006 it is considered a “new” engine and is subject to the RICE MACT requirements for new engines.

In addition, the natural gas fired engines included in Section II of the current permit are considered existing (construction commenced prior to June 12, 2006) and therefore also subject to requirements in the RICE MACT.

Organic Liquid Distribution (Non-Gasoline) MACT (40 CFR Part 63 Subpart EEEE)

Under 40 CFR Part 63 Subpart EEE §§ 63.2334(c)(1) and (2), organic liquid distribution operations do not include activities and equipment at ONGP and NGTS facilities; therefore, the organic liquid distribution MACT requirements do not apply.

Industrial, Commercial and Industrial Boilers located at major sources (40 CFR Part 63 Subpart DDDDD) and area sources (40 CFR Part 63 Subpart JJJJJJ)

Unlike the RICE MACT, the MACT for industrial, commercial and institutional boilers and process heaters located at major sources (40 CFR Part 63 Subpart DDDDD) does not appear to allow sources to use the provisions from the NGTS and ONGP MACTs to determine HAP emissions from glycol dehydrators, so it would see that HAP emissions from dehydrators would have to be based on traditional PTE methods. However, as indicated in § 63.7485, for ONGP facilities major sources are defined in accordance with the requirements in 40 CFR Part 63 Subpart HH § 63.761, so presumably this would mean that ONGP and NGTS equipment would not be aggregated together and so S001 and S009 would be considered separately to determine if the facility is major. As indicated in Table 2 (page 22), using traditional PTE the ONGP equipment is not a major source for HAPs. However, as indicated in Table 2 (page 22), using traditional PTE the NGTS equipment (S002 thru S008) is major for HAPs. Therefore, the NGTS equipment is potentially subject to the requirements in 40 CFR Part 63 Subpart DDDDD (major sources) and the ONGP equipment is potentially subject to the requirements in 40 CFR Part 63 Subpart JJJJJJ (area sources).

Boiler MACT for Major Sources (40 CFR Part 63 Subpart DDDDD)

EPA promulgated National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters on March 21, 2011. As discussed above, it appears that these requirements apply to the equipment associated with the NGTS operations at this facility. The Division has requested that CIG identify all of the boilers and/or process heaters associated with the NGTS operations so that the Division may include the appropriate requirements in the permit. Since all of the fuel-burning equipment at the facility burns natural gas, only work practice standards (i.e., boiler tune-ups) apply.

Boiler MACT for Area Sources (40 CFR Part 63 Subpart JJJJJJ)

EPA promulgated National Emission Standards for Hazardous Air Pollutants for Area Sources: Industrial, Commercial, and Institutional Boilers on March 21, 2011. Unlike the Boiler MACT for major sources (40 CFR Part 63 Subpart DDDDD), this rule (40 CFR Part 63 Subpart JJJJJJ) only applies to boilers, not process heaters. As discussed above only the ONGP equipment would potentially be subject to the requirements in Subpart JJJJJJ. It appears that there is no equipment at this facility that would meet the

definition of a boiler and since this rule does not apply to gas-fired boilers anyway, these requirements do not apply to the ONGP equipment.

New Source Performance Standards (NSPS)

EPA has promulgated NSPS requirements for new source categories since the issuance of the first renewal permit for this facility. NSPS requirements generally only apply to new or modified equipment and the Divisions is not aware of any modifications to existing equipment or additions of new equipment that would render equipment at this facility subject to NSPS requirements. However, because the recently promulgated NSPS requirements address equipment that may not be subject to APEN reporting or minor source construction permit requirements, the applicability of some of the newly promulgated requirements are being addressed here.

NSPS Subpart JJJJ – Stationary Spark Ignition Engines

NSPS Subpart JJJJ applies to stationary spark ignition engines that commenced construction, reconstruction or modification after June 12, 2006 and were manufactured after specified dates. The date the engine commenced construction is the date the engine was ordered by the owner/operator. Engines E001 through E005 commenced operation well before June 12, 2006 and there is no indication that any of these units have been modified (note that installation of controls is not considered a modification under 40 CFR Part 60 § 60.14(e)(5)). As discussed under the RICE MACT, an existing Waukesha emergency generator was replaced with a Caterpillar engine in August 2007. CIG submitted information on August 3, 2012 indicating the Caterpillar was ordered in April 2007 and manufactured in April 2006. Although the engine commenced construction after June 12, 2006, it was manufactured prior to July 1, 2008 (the applicable manufactured date for engines less than 500 hp), so NSPS Subpart JJJJ does not apply to the replacement emergency generator. Therefore, the requirements in NSPS Subpart JJJJ do not apply to any of the engines at this facility.

NSPS Subpart IIII – Stationary Compression Ignition Engines

NSPS Subpart IIII applies to stationary compression ignition engines that commenced construction, reconstruction or modification after July 11, 2005 and were manufactured after specified dates. The date the engine commenced construction is the date the engine was ordered by the owner/operator. There are no compression ignition engines located at the Flank Compressor Station, so the requirements in NSPS Subpart IIII do not apply.

NSPS Subpart OOOO – Crude Oil and Natural Gas Production, Transmission and Distribution

Standards of Performance for Crude Oil and natural Gas Production, Transmission and Distribution were promulgated on August 16, 2012 in 40 CFR Part 60 Subpart OOOO (NSPS Subpart OOOO). The provisions in NSPS Subpart OOOO apply to several

affected facilities at crude oil and natural gas production, transmission and distribution facilities that commenced construction, modification or reconstruction after August 23, 2011. The affected facilities under NSPS OOOO include gas wells, compressors (centrifugal and reciprocating), pneumatic controllers, storage vessels, equipment leaks associated with process units (i.e., equipment used to extract natural gas liquids from field gas) and sweetening units located at onshore natural gas processing plants. In the first case, the facility commenced operation in 1994 and it is not apparent that any equipment at the facility was constructed, reconstructed or modified after August 23, 2011; however, the Division has reviewed the potential applicability with respect to the individual affected facilities.

The pneumatic controllers and compressors are only affected facilities if they are located between the wellhead and the natural gas transmission and storage segment. This facility consists of equipment that falls under the ONGP and the NGTS categories. In their October 30, 2012 additional information submittal, the source indicated that of the pneumatic controllers at the facility, only three are natural gas-fired and that all pneumatic controllers were installed prior to August 23, 2011. The source also indicated in their October 30, 2012 submittal that all compressors at the facility commenced construction prior to August 23, 2011.

Under the rule, gas wells are defined as “an onshore well drilled principally for production of natural gas”. There is some production wells associated with the Flank facility but these wells were drilled for the purpose of producing crude oil, not natural gas. Therefore, there are no wells at this facility that meet the definition of “gas well” under Subpart OOOO.

Equipment associated with process units and sweetening units located at onshore natural gas processing plants are affected facility under Subpart OOOO. There are no sweetening units at this facility. Process units extract natural gas liquids from field gas, so essentially a process unit is what makes a facility an onshore natural gas processing plant. Neither the ONGP or NGTS operations include a natural gas processing plant, nor is there a sweetening unit at the facility.

Any storage vessels with VOC emissions greater than or equal to 6 tons/yr of VOC that commenced construction, reconstruction or modification after August 23, 2011 would be an affected facility and would be subject to the requirements in Subpart OOOO. While there is a number of storage vessels included in the insignificant activity list in the permit, none of these tanks were constructed or modified after August 23, 2011 and none of the tanks have emissions greater than or equal to 6 tons/yr of VOC.

In summary, there are no Subpart OOOO affected facilities located at the Flank Compressor Station; therefore, the requirements in Subpart OOOO do not apply.

Compliance Assurance Monitoring (CAM) Requirements

CAM applies to any emission unit that is subject to an emission limitation, uses a control

device to achieve compliance with that emission limitation and has potential pre-control emissions greater than major source levels. CAM typically applies during renewal of the permit and was addressed during the first renewal of this permit (issued January 1, 2006). With the exception of CIG's requested changes to the CAM plan, the CAM in that first renewal permit will remain unchanged; however, since the first renewal permit was issued, a control device was added to the field dehydrator (S009).

The control device (flare) was added to the field dehydrator in order to meet requirements in Colorado Regulation No. 7, Section XVII.D. In their July 6, 2009 modification application, CIG requested emissions limitations for the dehydrator that reflect 95% control for the flare. However, since uncontrolled emissions from the dehydrator do not exceed the major source level, CAM does not apply to the the field dehydrator (S009).

The engines are subject to control requirements in Colorado Regulation No. 7, Section XVII.E.3 for existing (constructed or modified before February 1, 2009) stationary internal combustion engines. Under these provisions, controls are required to be installed on existing engines > 500 hp by July 1, 2010. The required controls on engines S002 – S004 were installed in 2003 as required by a compliance order on consent. Sources that can demonstrate that retrofit controls cannot be installed at a cost less than \$ 5,000/ton are exempt from the control requirements. The source requested an exemption from the control requirements for engines E001 and E005 on July 30, 2009 and the Division granted the exemption in a December 21, 2009 letter. In the future, these units may be subject to emission limitations under 40 CFR Part 63 Subpart ZZZZ, for which a control device will be necessary. However, as specified in 40 CFR Part 64 § 64.2(b)(1)(i), “[e]mission limitations or standards proposed by the Administrator after November 15, 1990 pursuant to section 111 or 112 of the Act” are exempt from the CAM requirements.

Therefore, no additional emission units are subject to CAM at this time.

Greenhouse Gas Emissions

The potential-to-emit of greenhouse gas (GHG) emissions from this facility is less than 100,000 TPY CO₂e. Future modifications greater than 100,000 TPY CO₂e may be subject to regulation (Regulation No. 3, Part A, I.B.44).

Repealed APEN Exemptions

Since the first Title V renewal permit was processed (issued January 1, 2006) the following APEN exemptions were repealed: Produced water tanks (Reg 3, Part A, Section II.D.1.uu), Crude oil tanks < 40,000 gal (Reg 3, Part A, Section II.D.1.ddd), Engines – limited size and hours (Reg 3, Part A, Section II.D.1.sss) and Emergency Generators – limited size and hours (Reg 3, Part A, Section II.D.1.ttt). While the APEN exemptions have been repealed, the corresponding insignificant activity designations for the crude oil and produced water tanks were not repealed (Reg 3, Part C, Section

II.E.3.uu and ddd, respectively) and there is an insignificant activity category for engines (Reg 3, Part C, Section II.E.3.nnn) but it is different than the previous insignificant activity category for engines and emergency generators. Although the specific APEN exemptions have been repealed for crude oil tanks, produced water tanks and engines, these types of emission units are still exempt from APEN reporting requirements if actual, uncontrolled emissions are below the APEN de minimis level.

In their current Title V permit (last revised November 10, 2001), the insignificant activity list includes one emergency generator and several crude oil tanks. During processing of this second renewal, the Division requested information from the source to determine whether the crude oil tanks and the emergency generator are still APEN exempt. In their July 12, 2012 submittal, CIG provided information indicating that emissions from the crude oil tank batteries and the emergency generator were below the APEN de minimis level. Note that the emergency generator is discussed elsewhere in this document with respect to its potential applicability to the requirements in 40 CFR Part 63 Subpart ZZZZ and 40 CFR Part 60 Subpart JJJJ. In their July 12, 2012 submittal, CIG included an updated list of tanks, including a produced water tank, for the insignificant activities. In their October 30, 2012 submittal, the source provided information indicating that emissions from the produced water tank were below the APEN de minimis level.

III. Discussion of Modifications Made

Source Requested Modifications

The source's requested modifications identified in the renewal application were addressed as follows:

August 24, 2009 Renewal Application

In their renewal application the source did not request any changes, except those noted in the July 6, 2009 modification application.

July 6, 2009 Modification Application

In their July 6, 2009 modification application, the source specifically requested changes to the CAM plan for engines E002 – E004, requested that the oxygen sensor health be monitored, in lieu of the millivolt reading for the air-fuel ratio controller (AFRC) for engines E002 – E004 and to include the flare for the field dehydrator. The modifications were addressed as follows:

Section II.2 – Engines E002 – E004

In their application, the source requested that the requirement to record the AFRC millivolt reading be replaced with a requirement to record the oxygen sensor health. During the processing of this renewal, it became apparent that the oxygen sensor health

cannot be independently verified by an inspector. Therefore, both the source and the Division agreed that the requirement to record the AFRC millivolt reading would remain in the permit.

Section II.8 – CAM Requirements

- Revisions were made to Condition 8.1.1.1 to reflect the changes to the CAM indicators for engines E002 – E004.

Appendix G – Units S002 – S004 CAM plan

- The Division revised the indicator range for the pressure drop as indicated in the draft permit submitted with the modification, except that the baseline pressure drop remains in the CAM plan. The Division also revised the CAM plan justification to indicate the changes to the indicator range.

Section II.6 – Field Dehydrator

In July 6, 2009 modification, the source requested that the permit be revised to reflect the flare that was installed on the field dehydrator. The source proposed monitoring requirements for the flare and also requested revised emission limitations from the dehydrator to reflect the addition of the flare. The following changes were made based on the modification request:

- The VOC emission limitation in Condition 6.1 was revised to the requested emission limits indicated on the APEN submitted on July 6, 2009.

With a flare installed on the dehydrator there is a potential for NO_x and CO emissions from the flare. Both the application and the APEN submitted on July 6, 2009 are silent regarding NO_x and CO emissions from the flare. The Division estimated emissions using the information in the GLYCALC run and flare emission factors from AP-42, Section 13.5, NO_x and CO emissions are below the APEN de minimis level. In addition, at the request of the Division, the source submitted information on July 12, 2012 indicating that NO_x and CO emissions from the flare are below the APEN de minimis level. Therefore, emissions limitations for NO_x and CO are not included in the permit.

- Provisions were added for the flare. Note that since the flare has been enclosed with a wind shroud, the suggested monitoring included in the July 6, 2009 was revised. The source's proposed language was based on the requirements for flares included in 40 CFR Part 63 Subpart A § 63.11(b). In revisions to the requirements in 40 CFR Part 63 Subpart HH (signed as final on April 17, 2012 but not yet published in the Federal Register), a definition of flare was added. Flares are defined as "a thermal oxidation system using an open flame (i.e., without enclosure)". The Division considers that with the addition of the wind shroud, the flare no longer qualifies as a "flare" under the provisions of § 63.11(b) and so the monitoring

suggested in the July 6, 2009 application is not entirely appropriate. As a result, some revisions were made to CIG's proposed monitoring for the flare.

July 12, 2012 Comments on the Draft Permit and Technical Review Document

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- Changed the responsible official.

Section I – General Activities and Summary

- Corrected the language in Condition 1.1 indicating the location of the nearest major road.
- Added the alternative operating scenario for both temporary and permanent engine replacement. Note that for the permanent engine replacement scenario, only a like-kind replacement is allowed.

Appendix A

- Corrected the language under "Directions to Plant" to correct the language regarding the nearest major road.
- The list of insignificant activities was revised to include the list of tanks and natural gas fired equipment that was identified in the July 12, 2012 submittal.

August 31, 2012 Additional Information Submittal

General

In their August 31, 2012 additional information submittal, CIG submitted an APEN to change the company name from "Colorado Interstate Gas Company" to "Colorado Interstate Gas Company, LLC". However, in order to make this change effectively the Division needs to make this change for all facilities undergoing this name change. Therefore, until CIG submits the appropriate information for all facilities that will undergo the name change, the name on this permit will remain as "Colorado Interstate Gas Company". Note that since a name change qualifies as an administrative amendment the name change can be made at any time prior to issuance of this second renewal permit.

Other Modifications

In addition to the source requested modifications, the Division has included changes to make the permit more consistent with recently issued permits, include comments made by EPA on other Operating Permits, as well as correct errors or omissions identified during inspections and/or discrepancies identified during review of this renewal. The Division has made the following revisions, based on recent internal permit processing decisions and EPA comments to the Flank Station Renewal Operating

Permit. These changes are as follows:

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- Monitoring and compliance periods and report and certification due dates are shown as examples. The appropriate monitoring and compliance periods and report and certification due dates will be filled in after permit issuance and will be based on permit issuance date. Note that the source may request to keep the same monitoring and compliance periods and report and certification due dates as were provided in the original permit. However, it should be noted that with this option, depending on the permit issuance date, the first monitoring period and compliance period may be short (i.e. less than 6 months and less than 1 year).

Section I – General Activities and Summary

- Condition 1.4 was revised to remove Section IV, Condition 3.d as a state-only requirement, since EPA approved these provisions into Colorado's SIP effective October 6, 2008.
- Made minor revisions to the language in Condition 3.1 to be more consistent with other permits.
- The following changes were made to the table in Condition 6.1:
 - Added a column for the startup date of the equipment.
 - Corrected the stack id numbers for the east and west dehydrators
 - Combined the emission unit no. and facility id columns.

Sections II.1 and 3 – Engines E001 and E005

- Revisions were made to the last paragraphs in Conditions 1.1.1 and 3.1.1 to reflect revisions to the portable monitoring language.
- Added a requirement to record hours of operation, since hours of operation are used to allocate fuel use.
- On December 12, 2008, the Colorado Air Quality Control Commission (AQCC) adopted revisions to Colorado Regulation No. 7 to include state-wide requirements for existing internal combustion engines greater than 500 hp. These requirements are set forth in Reg 7, Section XVII.3 and as specified previously, sources that could demonstrate that the retrofit cost was more than \$ 5,000/ton were exempt from the requirements. The source requested an exemption from the control requirements from this engine and Division granted the exemption in a letter dated December 21, 2009. Therefore the Reg 7 control requirements do not apply and have not been included in the permit.

- Revisions were made to the RICE MACT (40 CFR Part 63 Subpart ZZZZ) on August 20, 2010 and these revisions apply to engines E001 and E005. The appropriate applicable requirements from the RICE MACT were included in the permit. Under the current requirements these engines are subject to either an outlet CO emission limitation or a CO percent reduction requirement. The compliance date for these requirements is October 19, 2013. In APENs submitted on December 23, 2011, the source indicated that the engines met (or would meet) the CO percent reduction requirements. In addition, in their February 28, 2012 information submittal, the source indicated that they would meet the CO percent reduction requirements for these engines. Therefore, the CO percent reduction requirements were included in the permit. Note that the bulk of the Subpart ZZZZ requirements are included in “new” Section II.10 but a reference to these requirements is included in Sections II.1 and 3.

Proposed revisions to the RICE MACT were published in the Federal Register on June 7, 2012. Under the proposed revisions existing engines greater than 500 hp located at area sources that are remote stationary RICE are subject to work practice standards. These engines are remote stationary RICE. Note that the permit includes the current requirements but there is a note indicating that the requirements may change in the future. If final revisions to the RICE MACT are published in the Federal Register prior to permit issuance, they will be included in the permit.

- Since these engines are subject to 40 CFR Part 63 Subpart ZZZZ, these engines are also subject to the MACT general provisions (40 CFR Part 63 Subpart A). The appropriate general provisions have been included in the permit. Note that the bulk of the Subpart A requirements are included in “new” Section II.10 with the RICE MACT requirements but a reference to these requirements is included in Sections II.1 and 3.

Section II.2 – Engines E002 – E004

- Revisions were made to the last paragraph in Condition 2.1.1 to reflect revisions to the portable monitoring language.
- A requirement was added to record engine hours of operation, since hours of operation are used to allocate fuel use and to assess compliance with the short term (lbs/hr) NO_x limit.
- The performance test language in Condition 2.1.3 was revised to remove the initial test (following issuance of the previous renewal permit) and to specify that the source submit the new pressure drop baseline and begin monitoring under the new pressure drop baseline within 45 days of the test. The language was also revised to require that a minor mod application be submitted with the new pressure drop baseline to incorporate the new pressure drop baseline into the permit.
- On December 12, 2008, the Colorado Air Quality Control Commission (AQCC) adopted revisions to Colorado Regulation No. 7 to include state-wide requirements

for existing internal combustion engines greater than 500 hp. These requirements are set forth in Reg 7, Section XVII.3. The controls required by Reg 7, Section VII.3 were installed on these units in 2003 as required by a compliance order on consent. Therefore, the requirements in Reg 7, Section XVII.3.a were streamlined in favor of the control requirements specified in the compliance order on consent (Condition 2.8).

- Revisions were made to the RICE MACT (40 CFR Part 63 Subpart ZZZZ) on August 20, 2010 and these revisions apply to engines E002 – E004. The appropriate applicable requirements from the RICE MACT were included in the permit. This engine is subject to either an outlet formaldehyde emission limitation or a formaldehyde percent reduction requirement. The compliance date for these requirements is October 19, 2013. In their February 28, 2012 submittal, the source indicated that they would meet the outlet formaldehyde limit, so that option has been included in the permit. Note that the bulk of the Subpart ZZZZ requirements are included in “new” Section II.10 but a reference to these requirements is included in Section II.2.

Proposed revisions to the RICE MACT were published in the Federal Register on June 7, 2012. Under the proposed revisions existing engines greater than 500 hp located at area sources that are remote stationary RICE are subject to work practice standards. These engines are remote stationary RICE. Note that the permit includes the current requirements but there is a note indicating that the requirements may change in the future. If final revisions to the RICE MACT are published in the Federal Register prior to permit issuance, they will be included in the permit.

- Since these engines are subject to 40 CFR Part 63 Subpart ZZZZ, these engines are also subject to the MACT general provisions (40 CFR Part 63 Subpart A). The appropriate general provisions have been included in the permit. Note that the bulk of the Subpart A requirements are included in “new” Section II.10 with the RICE MACT requirements but a reference to these requirements is included in Section II.2.

Sections II.4 and 5 – TEG dehydrators

- On December 12, 2008, the Colorado AQCC adopted revisions to Colorado Regulation No. 7 to include state-wide requirements for oil and gas operations. These requirements are included in Colorado Regulation No.7, Section XVII and include requirements for glycol dehydrators with actual uncontrolled VOC emissions above 15 tons/yr. The 15 tons/yr actual emission threshold is based on emissions from all glycol dehydrators on site combined. However, these requirements do not apply to glycol dehydrators located at natural gas storage facilities. The dehydrators included in these sections for the permit (S006 – S008) are associated with the storage facility and as a result, the requirements in Colorado Regulation No. 7, Section XVII.D do not apply to these dehydrators.

Section II.6 – Field TEG dehydrator

- Removed the phrase “and the twelve month rolling total for hours of operation are in compliance with the annual hours of operation limit” from the second sentence in Condition 6.1.5 since this unit does not have an annual hours of operation limit.
- The appropriate requirements from 40 CFR Part 63 Subpart HH have been included for this glycol dehydrator. For area sources, if actual benzene emissions from triethylene glycol dehydrators are below 0.9 megagrams per year (1,984 lb/yr) or the actual annual natural gas rate flowrate is less than 85 thousand cubic meters per day (3.0 MMScf/day) then only recordkeeping requirements apply. At the requested emissions rates in their July 6, 2009 minor modification application, benzene emissions from this unit will be below the 1,984 lbs/year threshold. Therefore, the appropriate requirements for the exemptions have been included in the permit.

It should be noted that although it is likely that CIG will rely on the exemption for actual benzene emissions, the language for both exemptions have been included in the permit.

Note that revisions to the requirements in Subpart HH were published in the Federal Register on August 16, 2012 and have been included in the permit. For glycol dehydrators at area sources the August 16, 2012 revisions were not significant. This unit is still exempt as long as benzene emissions are below 1,984 lbs/yr or the actual annual natural gas flowrate is less than 3.0 MMScf/day. Note that since this unit is essentially exempt from the Subpart HH requirements, the Division does not consider that the affirmative defense provisions that were included in the August 16, 2012 revisions apply to this unit, so they have not been included in the permit.

Section II.7 – Portable Monitoring Language

- The portable monitoring language was updated.

Section II.9 – Boilers and Process Heaters

As indicated previously, since the Boiler MACT does not appear to allow sources to use the provisions from the NGTS and ONGP MACTs to determine HAP emissions from glycol dehydrators, it seems that HAP emissions from dehydrators would have to be based on traditional PTE methods. Based on traditional PTE methods for the dehydrators, the NGTS portion of Flank Station is a major source for HAPs with respect to the Boiler MACT. The Division requested that the source submit information on the boilers and process heaters that are associated with the NGTS equipment.

In their July 12, 2012 submittal, the source identified a boiler and several process heaters that were associated with the NGTS facility. The source identified the three (3) glycol reboilers that are associated with the NGTS dehydrators (S006, S007 and S008), a Peerless boiler (rated at 1.5 MMBtu/hr) used to heat ambitrol that is used to heat buildings and fuel gas regulators and gas in-line heater (rated at 4.0 MMBtu/hr).

Both the gas in-line heater and the Peerless boiler are subject to the Boiler MACT requirements (40 CFR Part 63 Subpart DDDDD). Note that while the definition of process heaters in Subpart DDDDD exclude units that are used for used for comfort or space heat, this exclusion is not included in the definition of boiler. Therefore, the Peerless boiler is subject to the requirements in Subpart DDDDD. Note that the current permit includes a 1.5 MMBtu/hr "water heating boiler" in Section II.9 of the permit. This boiler was addressed in an EPA PSD permit and was included in Section II of the permit because the unit was subject to a BACT limit (see page 20 of the Technical Review Document to support the January 1, 2006 renewal permit). No description information was provided in the EPA PSD permit or in construction permits issued by the Division, therefore, it is not clear whether the Peerless boiler is in fact that same boiler that was permitted in the 1979-1980 time frame. At the request of the Division, the source submitted information on October 30, 2012 indicating that the Peerless boiler has been in place since initial construction in 1979 -1980 and the boiler has always used ambitrol as a heat transfer medium but it is a water/ambitrol mixture. Therefore, the Peerless boiler is the same boiler addressed in the EPA PSD permit. It should be noted that in their October 30, 2012 information submittal, documentation indicates that the site rating of this unit is 1.13 MMBtu/hr; however, the source indicated in a later e-mail that the tag on the boiler indicates a heat input rate of 1.68 MMBtu/hr. Therefore, 1.68 MMBtu/hr is listed in the permit as the heat input rate for this boiler.

In their July 12, 2012 submittal, CIG also identified several other heaters that qualify as insignificant activities associated with the NGTS operations. These heaters included a hot water heater, furnace control room heater and several catalytic heaters. As defined in Subpart DDDDD § 63.7575, the primary purpose of a process heater is to transfer heat indirectly to a process material (liquid, gas, or solid) or to a heat transfer material for use in a process unit and the catalytic heaters do not meet the definition of process heaters. In addition, the definition of process heaters does not include units used for comfort or space heat, which excludes the furnace control room heater. Finally, a hot water heater was identified as an insignificant activity but in accordance with § 63.7491(d) hot water heaters are not subject to the requirements in Subpart DDDDD.

The Division considers that the reboilers are not subject to the requirements in Subpart DDDDD since they are part of an affected facility that is subject to another MACT standard as provided for in 40 CFR Part 63 Subpart DDDDD § 63.7491(h). Glycol dehydrators are an affected facility subject to the requirements in 40 CFR Part 63 Subpart HHH (NGTS MACT) which applies to NGTS facilities that are major sources for HAPs. Although the NGTS facility at Flank is not a major source for HAPs and therefore is not subject to any requirements under the NGTS MACT, the Division considers that the exclusion still applies because the reboilers are part of an affected source that is potentially covered under another MACT. It should be noted that the NGTS facility is only subject to the major source Boiler MACT requirements because the method for determining whether a facility is a major source or not is different between the Boiler and NGTS MACTs. If the NGTS methods were used to determine major source status, the NGTS facility would be an area source for HAPs and subject to the area source Boiler MACT (40 CFR Part 63 Subpart JJJJJ). Under the area source

Boiler MACT, none of the equipment at the Flank NGTS facility would be subject to requirements under Subpart JJJJJJ.

The small boiler and process heater are subject to the following applicable requirements:

- Except as provided for below, visible emissions shall not exceed 20% opacity (Reg 1, Section II.A.1)
- Visible emissions shall not exceed 30% opacity, for a period or periods aggregating more than six (6) minutes in any sixty (60) minute period, during fire building, cleaning of fire boxes, soot blowing, start-up, process modifications, or adjustment or occasional cleaning of control equipment (Reg 1, Section II.A.4)

Based on engineering judgment, the Division believes that the operational activities of fire building, cleaning of fire boxes and soot blowing do not apply to these units. In addition, since these units are not equipped with control equipment the operational activities of adjustment or occasional cleaning of control equipment also do not apply to these units. Process modifications and startup may apply to these units, however, based on engineering judgment, the Division believes that such activities would be unlikely to occur for longer than six minutes. Therefore, the 30% opacity requirement has not been included in the operating permit.

- Particulate matter emissions shall not exceed $0.5(FI)^{-0.26}$ lbs/MMBtu, where FI is the fuel input in MMBtu/hr (Reg 1, Section III.A.1.b).
- Boiler MACT requirements (40 CFR Part 63 Subpart DDDDD), which include the following:
 - Energy assessment
 - Boiler tune-ups

Since these units are not subject to APEN reporting or minor source construction permit requirements, the permit will not include any requirements for calculating emissions.

Emergency Engine

There is one engine included in the insignificant activity list that is considered insignificant under the provisions in Colorado Regulation No. 3, Part C, Section II.E.3.nnn.(ii) (emergency generators operated < 250 hrs/yr). However, under the “catch-all” provisions in Regulation No. 3, Part C, Section II.E, sources that are subject to any federal or state applicable requirement, such as National Emission Standards for Hazardous Air Pollutants (NESHAPs) or New Source Performance Standards (NSPS), may not be considered insignificant activities.

In the current Title V permit (last revised November 10, 2008) there is no descriptive

information on the emergency generator provided in the insignificant activity list. However, historic information indicates that the emergency generator was a Waukesha 177 hp engine and historic information related to this emergency generator was included in the draft Title V renewal permit. During the pre-public comment review period, CIG submitted comments indicating that the Waukesha emergency generator had been replaced with a Caterpillar rated at 425 hp. At the request of the Division, CIG submitted additional information on the Caterpillar indicating that the engine was ordered in April 2007, manufactured April 19, 2006 and installed on site in August 2007.

For purposes of the RICE MACT, commenced construction is based on “on-site” fabrication or installation. Since the replacement emergency generator (the Caterpillar) was installed after June 12, 2006 it is considered a “new” engine and is subject to the RICE MACT requirements for new engines. As specified in 40 CFR Part 63 § 63.6590(c) and (c)(1), new or reconstructed RICE located at area sources of HAP emissions meet the RICE MACT requirements by meeting the requirements in 40 CFR Part 60 Subpart JJJJ for spark ignition engines.

NSPS Subpart JJJJ applies to stationary spark ignition engines that commenced construction, reconstruction or modification after June 12, 2006 and were manufactured after specified dates. The date the engine commenced construction is the date the engine was ordered by the owner/operator. As indicated previously, the Caterpillar was ordered in April 2007 and manufactured in April 2006. Although the engine commenced construction after June 12, 2006, it was manufactured prior to July 1, 2008 (the applicable manufactured date for engines less than 500 hp), so NSPS Subpart JJJJ does not apply to the replacement emergency generator.

Although the Caterpillar is not subject to the requirements in NSPS Subpart JJJJ, no further RICE MACT requirements apply to this engine. Under the “catch-all” provisions in Reg 3, Part C, Section II.E, an emission unit that is subject to MACT requirements cannot be considered an insignificant activity. While the engine is subject to the RICE MACT, it is not subject to any requirements under the MACT. Therefore, the Division considers that as long as emissions from this engine are below the APEN de minimis level and/or the unit operates less than 250 hrs/yr, this engine can be considered an insignificant activity and included in the insignificant activity list in Appendix A of the permit. In their July 12, 2012 comments on the draft permit, CIG submitted information indicating that emissions from the emergency generator are below the APEN de minimis level, so it has been included in the insignificant activity list in Appendix A of the permit.

“New” Section II.10 – Reciprocating Internal Combustion Engine (RICE) MACT Requirements

The requirements in 40 CFR Part 63 Subpart ZZZZ that apply to engines E001 through E005 were included in this condition.

“New” Section II.11 – Insignificant Activities from the Storage Facility

Since emissions from the portions of the facility that fall under the NGTS category are close to the major source level, a condition has been included to address potential HAP emissions from insignificant activities and to keep these emissions below 1 ton/yr of total HAPs.

Section IV – General Conditions

- Added a version date.
- The paragraph in Condition 3.d indicating that the requirements are state-only has been removed, since EPA approved these provisions into Colorado's SIP effective October 6, 2008.
- The title for Condition 6 was changed from "Emission Standards for Asbestos" to "Emission Controls for Asbestos" and in the text the phrase "emission standards for asbestos" was changed to "asbestos control"
- Condition 29 (VOC) was revised primarily to add the provisions in Reg 7, Section III.C as paragraph e although other minor language and format changes were made.

Appendices

- Descriptive information (i.e., manufacturer, make and size) was included for the emergency generator in the insignificant activity list in Appendix A.
- The tables in Appendices B and C were revised to include the stack id numbers (e.g. S001) for the emission units.
- Changed the Division contact for reports in Appendix D.
- Cleared the table in Appendix F.

Table 1: HAP Emissions as Calculated in Accordance with NGTS MACT Method

**HAPS per CIG MACT analysis for S006, S007 and S008, with APCD corrections, higher engine hours
Includes requested changes to S006 & S007 in July 2008 mod and requested emissions for S009 in July 2009 mod**

Unit	HAP Emissions (tons/yr)									total
	acetaldehyde	acrolein	benzene	toluene	ethyl benzene	xylene	formaldehyde	n-hexane	methanol	
E001	0.22	0.16	0.04	0.21		0.01	1.83	0.03	0.07	2.57
E002 - E004	0.43	0.40	0.94	0.30		0.07	4.23		0.47	6.84
E005	0.40	0.29	0.08	0.39		0.02	3.33	0.08	0.12	4.71
East Dehy (S006)			0.27	0.49				0.12		0.88
West Dehy (S007)			0.26	0.48				0.12		0.86
Central Dehy (S008)			3.75	5.14				1.54		10.43
Field Dehy (S009)			0.15	0.39	0.10	0.14		0.06		0.84
Fugitive VOCs			2.90E-04	6.84E-04	0.00E+00	3.94E-04		4.48E-03		5.85E-03
Total	1.05	0.85	5.49	7.40	0.10	0.24	9.39	1.95	0.66	27.13
S001/S009 ¹	0.22	0.16	0.19	0.60	0.10	0.15	1.83	0.09	0.07	3.41
Others ²	0.83	0.69	5.30	6.80	0.00	0.09	7.56	1.86	0.59	23.73

¹S001 and S009 are subject to Subpart HH, therefore, they are aggregated separately for purposes of determining MACT applicability.

²The other emission units are potentially subject to Subpart HHH. Other significant emission units include S002, S003, S004, S005, S006, S007 and S008.

Engine emissions are based on most conservative emission factor (from AP-42 and HAPCalc 2.0, for 4-cycle rich burn engines and/or 4-cycle lean/clean burn) for each pollutant.

Note that except for S001, these are basically the same emission factors used by CIG

APCD corrections on dehy runs for S006, S007, and S008 are based on lower inlet gas temp per recorded values (average) and non-electric pumps for S006 and S007

The July 1, 2008 modification requested a higher glycol circulation rate for both S006 and S007, this was included in the analysis. In addition, the GLYCalc run used the default gas pump ratio of 0.08 acfm gas/gpm glycol, the previous version used a ratio of 0.05. An APEN was submitted on September 16, 2008 to request increased emissions from S006 and S007 (due to increased glycol circulation rate).

Fugitive VOC emissions are based on the information provided in a modification request submitted on March 22, 2007 (the 2007 component count, emission factors from EPA-453/R-95-017, "EPA's Protocol for Equipment Leak Emission Estimates", Table 2.4, November 1995), 8760 hrs/yr of operation and the March 2006 gas analysis).

This information demonstrated that VOC emissions are below the APEN de minimis level (2 tons/yr), hence the previously issued construction permit was cancelled

The source requested revised emission limitations for S009 in a July 6, 2009 modification application. Change in emissions is due to installation of a flare.

Table 2: Potential to Emit of HAPS

HAPS per Division Analysis

Unit	HAP Emissions (tons/yr)									total
	acetaldehyde	acrolein	benzene	toluene	ethyl benzene	xylene	formaldehyde	n-hexane	methanol	
E001	0.22	0.16	0.04	0.21		0.01	1.83	0.03	0.07	2.57
E002 - E004	0.43	0.40	0.94	0.30		0.07	4.23		0.47	6.84
E005	0.40	0.29	0.08	0.39		0.02	3.33	0.08	0.12	4.71
East Dehy (S006)			0.96	0.87	1.43	1.94		1.76		6.96
West Dehy (S007)			0.96	0.87	1.43	1.94		1.76		6.96
Central Dehy (S008)			6.03	1.95	1.40	1.30		1.06		11.74
Field Dehy (S009)			0.15	0.39	0.10	0.14		0.06		0.84
Fugitive VOCs			2.90E-04	6.84E-04	0.00E+00	3.94E-04		4.48E-03		5.85E-03
Total	1.05	0.85	9.16	4.98	4.36	5.42	9.39	4.75	0.66	40.62
S001/S009 ¹	0.22	0.16	0.19	0.60	0.10	0.15	1.83	0.09	0.07	3.41
Others ²	0.83	0.69	8.97	4.38	4.26	5.27	7.56	4.66	0.59	37.22

¹S001 and S009 are subject to Subpart HH, therefore, they are aggregated separately for purposes of determining MACT applicability.

²The other emission units are potentially subject to Subpart HHH. Other significant emission units include S002, S003, S004, S005, S006, S007 and S008.

Engine emissions are based on most conservative emission factor (from AP-42 and HAPCalc 2.0, for 4-cycle rich burn engines and/or 4-cycle lean/clean burn) for each pollutant.

Dehy emissions from GLYCalc runs used to set permit limits. in emissions.

For S006 and S007, n-hexane was not specifically identified. Therefore, "other hexanes" is presumed to be all n-hexane.

In their July 6, 2009 mod application, the source requested changes in permitted emissions for S009 to take credit for the flare.

Fugitive VOC emissions are based on the information provided in the modification request submitted on March 22, 2007 (the 2007 component count, emission factors from EPA-453/R-95-017, "EPA's Protocol for Equipment Leak Emission Estimates", Table 2.4, November 1995), 8760 hrs/yr of operation and the March 2006 gas analysis). This information demonstrated that VOC emissions are below the APEN de minimis level (2 tons/yr), hence the previously issued construction permit was cancelled.